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ORIGINAL ARTICLE

Challenges imposed by social isolation in the COVID-19 pandemic upon monitoring diabetics and those exposed or infected with HIV in a pediatric teaching hospital

Ana Lúcia Ferreira[1], Angela Rodrigues[2], Amanda Venturino Estorque[3], Isabela Hacar V M Julião[2], Sofia Luz C B Lobo[1], Marcia Gonçalves Ribeiro[1], Luiza Maria Calvano[2]

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Abstract

Objectives: To identify factors that may have influenced the follow-up of patients with type 1 diabetes mellitus and infection or exposure to the human immunodeficiency virus in a pediatric academic hospital during the COVID-19 pandemic. **Methods:** Descriptive and cross-sectional study; the patients' responsible for outpatient clinics (diabetes and infectious-parasitic-immune diseases), whose children had an appointment scheduled during the period of social isolation in the city of Rio de Janeiro, were interviewed. A direct questionnaire was applied. **Results:** Interview of 88 responsible (59 diabetes and 29 DIP-imuno), mostly mothers (79.7% and 44.8%, respectively). Slight predominance of females; the most frequent age group of adolescents. Most responsible attended the appointment (95% and 72.4%, respectively), about half using two or more public transportation. The patients attended due to a scheduled appointment (53.6% and 95.2%, respectively). Responsible's reasons for not taking the patient to the diabetes clinic were to avoid exposure to COVID-19 and prior medical advice to go alone. In the DIP-imuno clinic, the reason was to check a test result. The pandemic interfered in the disease in 59,3% and 41,4%, respectively. Fear of falling ill, agglomeration, patients' behavioral changes and financial problems were pointed out. **Conclusion:** Factors related to the pandemic influenced the patients' follow-up, with emphasis on the insecurity of their exposure. Despite the difficulties, care was maintained as most of the responsible and the hospital's health team found an intermediate way of acting without direct exposure of the patient with chronic disease.

[1] Federal University of Rio de Janeiro, Department of Pediatrics - Rio de Janeiro - Rio de Janeiro - Brazil.
[2] Federal University of Rio de Janeiro, Medical Program/Medical School - Rio de Janeiro - Rio de Janeiro - Brazil.
[3] Federal University of Rio de Janeiro. Occupational Therapy Course. Faculty of Medicine. Rio de Janeiro, RJ. Brazil.

Correspondence to:
Ana Lúcia Ferreira.
Federal University of Rio de Janeiro. Rua Bruno Lobo, nº 50, 3°Andar, Cidade Universitária, Rio de Janeiro, RJ, Brasil. CEP: 21941-902. E-mail: analuferr@gmail.com

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INTRODUCTION

In Brazil, data from the IBGE (Brazilian Institute of Geography and Statistics) show that between 9% and 11% of children and adolescents have some chronic disease[1,2]. Chronic diseases require continuous, long-term treatment, requiring permanent care such as frequent consultations, carrying out complementary tests, needs for supplies that aim to avoid decompensating the clinical condition. Emergency care and hospital admissions occur more frequently and, due to this complexity, families need specific guidance[3]. There is a concern, expressed widely in the media, with the treatment of patients with chronic diseases during the isolation imposed by the COVID-19 pandemic (adults and children). There is absenteeism at healthcare facilities, and it is feared that this behavior could lead to serious consequences. On the other hand, there is a concern with the contamination of these patients, many of them at risk of worse COVID-19 outcome.

Although most cases of COVID-19 in children are secondary to exposure to sick family members, children are as susceptible to infection as adults, and they play an important role in the spread of the virus, as they are usually asymptomatic or have mild illness, with few complications and lower need for hospitalization and very rare cases of fatal outcomes[4,5]. About 94% of children have asymptomatic, mild or moderate forms of the disease; 5% with severe form and less than 1% with critical condition[6-10].

As the transmission of COVID-19 can occur in the asymptomatic period, the control of the epidemic only with the isolation of symptomatic individuals is impaired. In this way, children must also participate in the usual preventive actions to contain and prevent the spread of the virus, such as social isolation. The limitation of access to public spaces, the closure of schools, universities, commerce and other activities considered non-essential, have affected the population of all age groups, including compromising healthcare[11,12].

The Brazilian Society of Pediatrics (SBP) has prepared "Alert Notes" that guide professionals and members of children and adolescents families with some chronic conditions in relation to treatment during the COVID-19 pandemic, including Diabetes Mellitus. Diabetic children should not attend elective appointments in offices or hospitals, due to the risk of contamination. They are instructed that contact with the medical teal should be made only if there is any need[13]. For other chronic conditions and immunodeficiencies, the recommendation is similar[14]. However, the SBP has not published any specific notes related to Human Immunodeficiency Virus (HIV) infection.

Remote contact with healthcare professionals in public hospitals is not always feasible. In addition, the low-income population often depends on actions by the healthcare team to obtain supplies and perform tests at no cost, making it necessary to attend the healthcare unit, at the risk of not being able to maintain, by their own means, proper treatment. This study aimed to identify factors that may influence the monitoring of children and adolescents with type 1 Diabetes Mellitus and HIV infection or exposure during the COVID-19 pandemic.

METHODS

Descriptive and cross-sectional study, carried out in a pediatric university hospital in Rio de Janeiro, where a large part of outpatient care is aimed at patients with chronic diseases. Those responsible for the patients in the Infectoparasitary-immune Diseases (IPID) (children and adolescents exposed to or with HIV infection) and Diabetes outpatient ward, who usually attend consultations with patients, were included. Only one caregiver from each family, whose children/adolescents had appointments scheduled over a period of three weeks during social isolation in the Municipality of Rio de Janeiro, imposed by the pandemic of COVID-19 (late April to early May 2020) and that agreed to participate in the study by signing the Free and Informed Consent Form, participated. Those who had their appointments cancelled by the service itself were excluded. These two outpatient clinics were selected for convenience, that is, better operationalization of the study. A telephone questionnaire was applied, with direct questions to characterize the patient's profile, the demands that the chronic disease routinely presents and how monitoring occurred during the pandemic. The variables studied were: the interviewee's relationship with the patient, the patient's age and sex, place of residence, outpatient clinic, frequency of attendance, reason for having attended or missed the appointment during the pandemic, presence of the child/adolescent in the appointment, type and quantity of means of transport used to commute to the institution, changes in monitoring during the pandemic, alternative monitoring in other healthcare units and changes in family life. The data were analyzed by simple frequency distribution for the nominal ones, distribution by ranges of values for the numerical ones and description of answers obtained in the direct open questions, grouping them. The hospital's Research Ethics Committee approved the study (Opinion Number: 4,014,891).

RESULTS

During the study period, 94 patients were scheduled at the Diabetes outpatient clinic and 41 at the DIP-Immuno clinic. Due to the impossibility of telephone contact, 35 patients were lost in the Diabetes clinic and 12 in the DIP-Immuno clinic. No guardian contacted refused to answer the survey questionnaire. Thus, the study sample comprised 88 guardians of children and adolescents, 59 from the Diabetes outpatient clinic and 29 from the DIP-Immuno clinic.

In the Diabetes clinic, the interviewee was the mother in 79.7%, followed by the father (15.3%), grandmother/grandfather (1.7%) and another type of guardian in 3.3%. In the DIP-Immuno clinic, the mother was 44.8% of the cases, followed by another family member (20.7%), father (13.8%),

grandmother/grandfather (10.3%) and another type of guardian (stepmother, friend, and caregiver) in 10.2%.

Table 1 shows the distribution by frequency, per outpatient clinic, of patient characteristics and data on routine follow-up, before the social isolation.

Table 2 shows the data related to the follow-up at these two clinics during social isolation due to the COVID-19 pandemic.

As to the COVID-19 pandemic having altered the family's life in some aspect, interfering in the patient's disease in the DIP-Immuno outpatient clinic 12/29 responded affirmatively (Table 2). The reported reasons were fear of illness 6/12 (50%), fear of crowding in public transportation 4/12 (33.3%) and financial problems (unemployment and lack of money) in 2/12 (16.7%) . At the Diabetes Outpatient Clinic, in which there was one or more responses per interviewee, 35/59 pointed out emotional disorders in children/adolescents (anguish, anxiety, agitation, nervousness, stress, fear of falling ill because they are at risk in 14/35 %]), decreased possibility of physical activity/leisure activities in 13/35 (37.1%), changes to their daily routine due to the lack of school in 8/35 (22.8%), difficulty controlling food intake in 6/35 (17.1%), among others (child needed to move to another house for better isolation, unemployment, reduced availability of public transport) in 3/35 (8.5%). Only one mother said that the child was calmer during this period, having even stopped previous food transgressions.

DISCUSSION

The present study addressed the factors that influenced hospital attendance and the monitoring of patients with chronic diseases, which were mostly related to the pandemic, highlighting the fear of the possibility of exposure to COVID-19 of a child/adolescent with chronic disease. The presence of pre-existing chronic disease appears to be a risk factor for disease severity, as in adults, although most children are asymptomatic or have mild symptoms [4-10]. However, a study carried out in 46 Pediatric Intensive Care Units (ICUs) in the United States and Canada, showed that 83% of the children hospitalized for COVID-19 had pre-existing complex medical conditions (long-term dependence on life support technology, including tracheostomy), malignancy and immunosuppression, obesity, diabetes, epilepsy, congenital

Table 1. Distribution of frequency by patient characteristics and routine follow-up before the pandemic, by outpatient clinic.

	CLINIC			
	Diabetes (N=59)		DIP-imuno (N=29)	
Age range	**n**	**%**	**n**	**%**
Infant	1	1,7	10	34,5
Pre-school age	7	11,9	3	10,3
School age	13	22,0	4	13,8
Adolescent	38	64,4	12	41,4
Sex				
Females	30	50,8	16	55,2
Males	29	49,2	13	44,8
City of residency				
Rio de Janeiro	45	76,3	24	82,8
Other cities	14	23,7	5	17,2
Frequency of follow up in the institution				
Monthly	7	11,9	15	51,7
Bimestrial	26	44,1	3	10,3
Trimestral	25	42,4	4	13,8
Semestral	0	0	3	10,3
Other	1	1,7	4	13,7
Type of transportation to commute to the institution				
Public	33	55,9	18	62,1
Private	18	30,5	11	37,9
Public + private	8	13,6	0	0
Number of transportation means				
1	30	50,8	14	48,3
2	25	42,4	13	44,8
3 or more	4	6,8	2	6,9

Table 2. Frequency distribution of follow-up data during the pandemic, by clinic.

	CLINIC§			
	Diabetes (N=59)		DIP-imuno (N=29)	
	n	%	n	%
Coming to the hospital during the pandemic				
Yes	56/59	95.0	21/29	72.4
No	3/59	5.0	8/29	27.6
Reason for the guardian to come (with or without the child) during the pandemic				
Consultation	23/56	41.0	14/21	66.6
Reschedule the visit and/or tests and/or inputs and/or prescriptions and/or reports	33 /56	59.0	5/21	23.8
With no information	0	0	2/21	9.5
Reason for the guardian not to come during the pandemic				
Associated with the pandemic	3*/3	100.0	5**/8	62.5
another reason	0/3	0	3/8	37.5
Coming to the hospital bringing the child during the pandemic				
Yes	30/56	53.6	20/21	95.2
No	26/56	46.4	1/21	4.8
Reason for coming with the child during the pandemic				
Consultation	28/30	93.3	18/20	90.0
Tests	2/30	6.7	2/20	10.0
Reason for not coming with the child during the pandemic				
By free will, to avoid exposing the child to COVID	15/26	57.7	0	0
Instructed by the clinic's physician to come without the child because of COVID	7/26	26.9	0	0
Came only to get test results, and/or inputs and/or reschedule the visit	4/26	15.4	1/1	100
Another option of healthcare unit to follow up or acquire inputs/performing tests with the patient				
Yes	17/59***	28.8	2/29****	6.9
No	42/59	71.2	27/29	93.1
Changes to family life caused by the pandemic impacted patient care?				
Yes	35/59	59.3	12/29	41.4
No	24/59	40.7	17/29	58.6

NOTE: § variable number of patients; * would have to use crowded bus and was afraid of contamination (1), following social isolation (1)and telephone information that they were not seeing patients during the pandemic (1); ** guardian with respiratory symptoms (1) and following social distancing (4); ***15/17 have other public facilities and 2/17 go to private clinics; ****2/29 go to other public facilities.

heart disease and other congenital malformations, sickle cell anemia and chronic lung disease, although only 48 children were hospitalized[15]. Another study carried out in 77 facilities in 21 European countries with 585 cases of children and adolescents with COVID-19 infection found 25% of cases in children and adolescents with pre-existing medical conditions, statistically associated with the need for ICU admission[16].

Such data reinforce the importance of maintaining adequate follow-up and treatment during the pandemic period, to avoid decompensating the underlying chronic clinical condition. Children and adolescents with Diabetes Mellitus often have to change many areas of their lives; good glycemic control, adequate nutrition and physical activity are necessary, under threat of acute decompensation and impaired quality of life[1,2]. Similarly, children and adolescents with HIV infection need prophylaxis from opportunistic infections, in addition to the management of infectious complications and nutritional disorders so that weight and height growth and neuro-psychomotor development are not compromised; infants exposed to HIV should be referred to specialized services early to start antiretroviral therapy and avoid vertical transmission[17].

However, attending the hospital for consultations and routine exams at the moment is a risky situation and has become a challenge. Several conditions interfere at this time and the frequency of these patients to hospitals has decreased alarmingly since the beginning of the pandemic in Rio de Janeiro, including the hospital in question (unpublished data). The safety of patients and family members on the way to the institution, as well as their stay in the place, is a concern of the health team and, certainly, also of family members.

The person responsible for taking the patient to the outpatient clinic was more often the mother, with a higher percentage in the Diabetes clinic than in the DIP-Immuno clinic (79.7% versus 44.8%). In addition, a variety of caregivers for patients was observed in the second clinic, with a high frequency of another relative (20.7%) and another type of caregiver (10.2%); perhaps due to the greater need for a support network in the possibility that parents who are also ill are in need of care or have already died of HIV. Although, in both outpatient clinics, the vast majority live in the city of Rio de Janeiro, it is clear that more than half rely on public transportation and about half use two or more means of transport to reach the institution, that is, patients and family members are exposed to contamination by COVID on the move.

Among the patients, there was a small predominance of females. The largest group was adolescents, which is expected in chronic diseases that have a long follow-up and in the case of the Diabetes outpatient clinic, the frequency of patients increased according to the age group, a result that corroborates data reported from a specialized service from another Brazilian university hospital[18], different from the DIP-Immuno outpatient clinic, where the second most frequent group is that of infants.

Children usually acquire HIV from a sick mother through vertical transmission. Thus, soon after birth they are referred to specialized services for antiretroviral therapy and prophylaxis for opportunistic infections[17], which justifies the presence of infants in a high percentage in the present study (34.5%). As the transplacental passage of maternal anti-HIV IgG antibodies can persist until 18 months of age, the detection of these antibodies is not sufficient for the diagnosis in infants, requiring quantification of the viral load. Until these results are obtained, these infants are categorized as exposed to HIV[17]. Due to prophylaxis actions to prevent vertical transmission, a higher number of children exposed to HIV are expected than infected children being monitored[17]. We found only eight (27.6%) children exposed to HIV, and 21 (72.4%) infected children being followed up at the DIP-Immuno outpatient clinic, as children not infected with HIV do not have follow-up at the service, being discharged to be followed in Primary Care. Only children and adolescents who have a confirmed diagnosis are followed up with the multi-professional team at the DIP-Immuno outpatient clinic, justifying the higher number of infected people than those exposed.

In the Diabetes outpatient clinic, the routine interval between consultations is two or three months, as reported by the guardians (Table 1), although the supply of some inputs is monthly, directly from the hospital's pharmacy, without the need for consultation. The child exposed to HIV must have monthly monitoring in the first six months up to one year of age[17], justifying the great frequency of monthly monitoring (51.7%) in the DIP-Immuno clinic before social isolation. As part of a combined HIV prevention, in addition to consultations and outpatient exams, these patients also receive antiretroviral drugs at the facility and, in the first months of life, infant formulas suitable for nutrition.

During the study period, most of the interviewed guardians had attended the hospital, as previously scheduled, in both outpatient clinics (56/59; 95% in Diabetes and 21/29; 72.4% in DIP-Immuno). In the case of Diabetes, the highest percentage attended during the pandemic to reschedule the appointment and/or check the results of tests and/or seek supplies, prescriptions and/or reports (33/56; 59%), instead of consultations (Table 2). This can be explained by the fact that the compensated patient does not need to come to the clinic during these times of social isolation, as part of the treatment consists of the assessment of daily blood glucose, use of medication and supplies and review of insulin therapy[19], procedures that can be performed without the presence of the patient, and it is possible to postpone the consultation of the child or adolescent to a time when their travel is safer. The alleged reason for attending the DIP-Immuno clinic, even during the pandemic was mainly the need for consultation (14/21; 66.6%). Children and adolescents infected with HIV have the possibility of developing higher number of infectious complications, and exposed infants need monthly consultations, in addition to receiving monthly nutritional formulas appropriate to their age group[17]; we believe that this may be an explanation for attending a high percentage of consultations.

The current pandemic has generated great uncertainty in the healthcare area concerning the prevention and maintenance of care[20]. In this context, one of the reasons mentioned for children and adolescents and their guardians not coming to the hospital, despite the fact that most do not have another healthcare unit to resort to, was the fear of exposure to the virus that already occurs due to the fact of leaving home and, then take public transportation, as is the case with most of the visitors to this hospital. The fear of exposure inhabits the collective imagination, but goes further, due to the reality, which showed an increase in the number of daily cases and deaths during the study period[21]. Respect for social isolation and the fact that the child's guardian was symptomatic at the time of the appointment was mentioned.

Compliance to treatment and the valuation of consultations by families can be observed by the frequency with which the caregivers took the children and adolescents to the outpatient clinics to effectively carry out the medical consultation (93.3% of the 30 who attended the Diabetes outpatient clinic and 90% of the 20 to the DIP-Immuno clinic); (Table 2), even during the pandemic period. This attitude can reflect confidence and good interaction with the healthcare team. Among the 26/56 (46.4%) who chose to attend without taking patients to the Diabetes outpatient clinic, the reasons given were mostly (84.6%) for not exposing the patient to the risk of contamination, either on their own initiative by instructions from the service physician. The others did not take them because they only went to get test results and/or supplies and/or reschedule an appointment. At the DIP-Immuno outpatient clinic, the only guardian who chose to attend without taking the patient claimed to have only gone to check the results of tests.

The family's life was altered during the pandemic, affecting the care of children and adolescents. Fear in relation to illness, behavioral changes in patients such as anxiety, distress and agitation, in addition to family financial problems, were found. The fragility of being is exposed and feelings of helplessness and abandonment arise, which often cause more inconvenience than COVID-19[20] itself. Recently, the Brazilian Diabetes Society drew attention to new knowledge of psychological and social factors that need to be considered in the treatment of type II Diabetes mellitus. In fact, those guardians with diabetics interviewed cited that changes to their daily lives such as interruption of physical exercise, the difficult control at meal times and the lack of school routine interfered with the glycemic control of children and adolescents, despite being under more direct supervision by family members due to social isolation.

As limitations, we cite the short interval of time for carrying out the study and the loss of patients who were unable to be summoned due to the difficulty in telephone communication. The present study showed that, despite the difficulties generated by the pandemic in different contexts in the families of the patients studied, care was maintained since most of the guardians, together with the hospital's healthcare team, found an intermediate way of monitoring the chronic disease, many times without exposing the patient to the risk of contracting COVID-19. We believe that in returning to regular follow-up of patients with chronic illness in the post-pandemic period, it is important that the healthcare team be attentive to the difficulties experienced and the adaptations that were necessary to overcome them, in order to resume the usual treatment in the possible way.

REFERENCES

1. Moreira MCN, Gomes R, de Sá MRC. Doenças crônicas em crianças e adolescentes: uma revisão bibliográfica. Ciênc Saúde Colet. 2014;19(7):2083-2094. doi: 10.1590/1413-81232014197.20122013
2. Malta DC, Silva Jr JB. O Plano de Ações Estratégicas para o Enfrentamento das Doenças Crônicas Não Transmissíveis no Brasil e a definição das metas globais para o enfrentamento dessas doenças até 2025: uma revisão. Epidemiol Serv Saúde. Brasília. 2013;22(1):151-164. doi: 10.5123/S1679-49742013000100016.
3. Benkel I, Arnby M, Molander U. Living with a chronic disease: A quantitative study of the views of patients with a chronic disease on the change in their life situation. SAGE Open Med. 2020; 8:1-7. doi: 10.1177/2050312120910350
4. Zimmermann P, Curtis N. Coronavirus Infections in Children Including COVID-19. An Overview of the Epidemiology, Clinical Features, Diagnosis, Treatment and Prevention Options in Children. Pediatr Infect Dis J. 2020; 39(5)355-368 doi: 10.1097/INF.0000000000002660
5. Bi Q, Wu Y, Mei S, Ye C, Zou X, Zhang Z, et al. Epidemiology and transmission of COVID-19 in Shenzhen China: analysis of 391 cases and 1,286 of their close contacts. Lancet Infect Dis. 2020. doi: 10.1016/S1473-3099(20)30287-5
6. Liu W, Zhang Q, Chen J, Xiang R, Song H, Shu S, et al. Detection of Covid-19 in Children in Early January 2020 in Wuhan, China. N Engl J Med. 2020;382(14):1370-1. doi: 10.1056/NEJMc2003717
7. Zheng F, Liao C, Fan Q-H, Chen H-B, Zhao X-G, Xie Z-G, et al. Clinical Characteristics of Children with Coronavirus Disease 2019 in Hubei, China. Curr Med Sci. 2020;40(2):275-80. doi: 10.1007/s11596-020-2172-6
8. Phan LT, Nguyen TV, Luong QC, Nguyen TV, Nguyen HT, Le HQ, et al. Importation and human-to-human transmission of a novel coronavirus in Vietnam. N Engl J Med. 2020;382(9):872-4. doi: 10.1056/NEJMc2001271
9. Chen ZM, Fu JF, Shu Q, Chen YH, Hua CZ, Li FB, et al. Diagnosis and treatment recommendations for pediatric respiratory infection caused by the 2019 novel coronavirus. W J Pediatr. 2020;16(3):240-6. doi: 10.1007/s12519-020-00345-5
10. Dong Y, Mo X, Hu Y, Qi X, Jiang F, Jiang Z, et al. Epidemiological Characteristics of 2143 Pediatric Patients With 2019 Coronavirus Disease in China. Pediatrics. 2020;145(6):e20200702. doi: 10.1542/peds.2020-0702
11. Tang A, Tong ZD, Wang Hl, Dai YX, Li KF, Liu JN, et al. Detección de nuevos coronavirus por RT-PCR en muestras de heces de niños asintomáticos, China. Emerg Infect Dis. 2020. doi: 10.3201/eid2606.200301
12. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia. N Engl J Med. 2020;382(13):1199-1207. doi: 10.1056/NEJMoa2001316
13. Sociedade Brasileira de Pediatria. Nota de alerta: Diabetes mellitus e COVID-19 em Pediatria. Rio de Janeiro: Sociedade Brasileira de Pediatria. 2020; 1-5.
14. Departamento Científico de Imunologia Clínica (Sociedade Brasileira de Pediatria), Grupo Brasileiro de Imunodeficiências (BRAGID), Jeffrey Modell Foundation Brasil - Centro São Paulo, Departamento Científico de Imunodeficiências (Associação Brasileira de Alergia e Imunologia). Nota de alerta: A COVID-19 em pacientes pediátricos com Erros Inatos da Imunidade - Posicionamento conjunto. Rio de Janeiro: Sociedade Brasileira de Pediatria. 2020; 1-5.
15. Shekerdemian LS, Mahmood NR, Wolfe KK, Riggs B, Ross CE, McKiernan CA, et al. Characteristics and Outcomes Of Children With Coronavirus Disease 2019 (COVID-19) Infection Admitted to US and Canadian Pediatric Intensive Care Units. JAMA Pediatr. 2020 May 11. doi: 10.1001/jamapediatrics.2020.1948
16. Götzinger F, Santiago-Garcia B, Noguera-Julián A, Lanaspa M, Lancella L, Carducci FIC, et al. COVID-19 in children and adolescents in Europe: a multinational, multicentre cohort study. Lancet Child Adolesc Health. 2020;S2352-4642(20)30177-2. doi: 10.1016/S2352-4642(20)30177-2
17. Ministério da Saúde, Secretaria de Vigilância em Saúde Departamento de Vigilância, Prevenção e Controle das Infecções Sexualmente Transmissíveis, do HIV/Aids e das Hepatites Virais. PROTOCOLO CLÍNICO E DIRETRIZES TERAPÊUTICAS PARA MANEJO DA INFECÇÃO PELO HIV EM CRIANÇAS E ADOLESCENTE. Brasília: Ministério da Saúde, 2018.
18. Silva IN, Reis MCS, Duarte MV, Albuquerque CTM. Características sociodemográficas e clínicas de crianças e adolescentes diabéticos acompanhados no Hospital de Clínicas da Universidade Federal de Minas Gerais. Rev Méd Minas Gerais. 2008;18(4 Supl 3):S5-S12. Disponível em: http://www.rmmg.org/artigo/detalhes/1251
19. Sociedade Brasileira de Diabetes. Tratamento do Diabetes mellitus tipo 1: manejo da hiperglicemia. In: Diretrizes da Sociedade Brasileira de Diabetes 2019-2020. São Paulo: Clannad Editora Científica; 2019. p.175-234.

20. Ornell F, Schuch JB, Sordi AO, Kessler FHP. “Pandemic fear” and COVID-19: mental health burden and strategies. Braz J Psychiatry. 2020; 42(3):232-235. doi: 10.1590/1516-4446-2020-008

21. Novo Coronavirus Boletim Diário. [Internet]. Rio de Janeiro; [atualizado em 2020 Jul 03; citado em 2020 Mai 31]. Disponível em https://coronavirus.rj.gov.br/boletim/boletim-coronavirus-31-05-5-344-obitos-e-53-388-casos-confirmados-no-estado-do-rio/